Journal of Academic Inquiry and Knowledge Volume 2024 (4) 22-30
ISBN 979-8-9888908-2-9

Artificial Intelligence in Enhancing Film Production

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The concept of artificial intelligence (AI) in films is not new. Ideas we associate with AI have been used in films since the early 20th century. In 1927, director Fritz Lang, in the film *Metropolis* featured a robot named Maria. The 1939 Czech film *R.U.R.*, based on a 1920 play by Karel Čapek, explored themes related to artificial beings. More recently, the 1968 movie *2001: A Space Odyssey*, directed by Stanley Kubrick and adapted from a futuristic short story by the author C. Clark, features a computer that develops advanced AI powers on its own for tragic results to a spaceship crew, anticipating the concerns of AI ethics and safety (*Fifty Years on, What 2001*, 2018).

This last decade has seen a significant leap in AI in films. AI programs are developing many aspects of filmmaking. In 2016, the first script created by artificial intelligence was produced for the movie *Sunspring* (Dorrier, 2016). The film industry is greatly accelerating the use of AI in the filmmaking process, such as editing and post-production, casting and character development, directing and camera work, and sound design and music composition. While there are concerns about the rapid employment of AI tools in filmmaking, this paper will highlight the

advantages of AI in filmmaking, such as democratizing the filmmaking process, expanding creative possibilities, and enhancing various stages of production.

Democratizing the Process

AI tools are making filmmaking more affordable and accessible to a broader audience beyond traditional industry insiders (Shipper, 2024). For example, artificial intelligence can operate automated cameras. These cameras are efficient, consistent, precise, and, most importantly, affordable (Townsend, 2024). Since the system handles the cameras, human error decreases, improving stability and efficient scheduling (Townsend, 2024).

The lower cost and greater efficiency of film production allow filmmakers to experiment with filmmaking techniques and create impactful films (Shipper, 2024). For example, Hollywood director, Dave Clark, pioneered using AI tools in creating content effortlessly and optimizing it for various platforms. Clark uses AI to edit frame clips. Additionally, he used an AI tool to create the voice of all his characters. He has used speech-to-speech technology to dub the voices, transforming his own voice to represent different characters (Shipper, 2024). Clark created his own GPT system, Blasian GPT, to brainstorm, tell compelling stories, and bring images to life in his movies (Shipper, 2024).

Enhancing Pre-Production

AI can improve the planning stages of filmmaking by optimizing pre-production planning. Directors start by focusing on scripts that will generate the most financially successful product (Andriasyan, 2022). AI does this by predicting certain situations that can affect a film's future such as giving projected box office information. Once this information is determined, directors insert large amounts of data regarding movie scripts into the system so that the AI can read all the data and develop a new script. AI can examine scripts that are in development to

highlight any issues. The main benefit of this overall process is that it is less time-consuming than other methods while saving precious resources (Andriasyan, 2022).

One AI tool that analyzes scripts is ScriptBook, which helps develop scripts by guessing future income and ways to improve the story (Sahota, 2024). Well-known studios such as 20th Century Fox have utilized artificial intelligence to oversee their scripts while deciding specific movie roles (Sahota, 2024). Even Warner Bros. Studios have used systems such as Cinelytic to aid with casting and highlighting future issues (Sahota, 2024). By leveraging AI tools like ScriptBook and Cinelytic, major studios can enhance script development, casting decisions, and anticipate potential challenges, ultimately refining the filmmaking process.

Artificial intelligence can manage casting by reviewing film history trends to find the perfect cast or the next popular actor (Townsend, 2024). AI can conduct virtual auditions with a specific rubric to select the ideal cast member (Andriasyan, 2022). After the system is filled with images of different faces, it can morph different facial expressions of actors into original performances to see if the actor would be suitable for the film (Andriasyan, 2022). This process can also digitally change an actor's age to determine casting suitability (Andriasyan, 2022). These systems use databases to catalog everything about an actor, from their previous roles to audience popularity (Townsend, 2024).

Deciding where to film is pivotal, and artificial intelligence can determine film locations. AI programs can give directors information about potential sites, including weather patterns. Directors can plan more efficiently by knowing more facts about potential locations (Townsend, 2024). With AI's assistance, directors can make informed decisions that optimize both the creative and logistical aspects of film production.

Enhancing Production

AI programs can help filmmakers in myriad other ways. The 2018 movie *Zone Out* used an AI system known as “Benjamin." Benjamin was given over 100 scripts to analyze. From there, Benjamin was fed footage of old films to grasp various concepts such as more sophisticated acting (Davies, 2022). The program developed knowledge of film direction by viewing cut-up clips from previous films and piecing them together like a puzzle to create something new (Davies, 2022). Directors can use AI to help gather their thoughts during filmmaking, as editing tasks are less time-consuming and more affordable.

Enhancing Post-Production

AI systems can be powerful in improving post-production processes, especially with editing and visual effects. AI systems can correctly choose which scenes and sequences belong in their respective categories (Townsend, 2024). This lessens the workload and allows filmmakers to focus on more important aspects of filmmaking (Townsend, 2024). Artificial intelligence in film editing can be categorized into three groups: timing emotions, automating assembly, and categorizing certain scenes (Townsend, 2024). *Automated assembly* can build a first draft of what the film may look like, which allows directors to make changes. *Emotional timing* is using facial expressions to determine a scene's tone to gain the audience’s attention fully. Finally, *scene categorization* determines the most appropriate scenes based on location, emotion, and even the subjects in the scene. Artificial intelligence also can produce and improve plots and plot points (Townsend, 2024).

Several visual effects supervisors have used artificial intelligence in production design to their benefit. Film director Oliver Zeller believes that artificial intelligence can help VFX artists in *rotoscoping*, a method used to produce accurate action scenes, helping reduce the time spent on a project (Production Designers Collective, n.d). AI can accelerate the creation of a character

the director envisions but may be difficult to replicate (Townsend, 2024). The system can analyze the process and make corrections on what to change, and enhance VFX with more precision and realism while efficiently rendering scenes (Townsend, 2024). Finally, artificial intelligence excels at choosing which scenes to insert into trailers, allowing for optimal audience engagement (Andriasyan, 2022).

Musically, AI can also review soundtracks and compositions to create a new composition that matches the film's overall feel (Andriasyan, 2022). This can include creative specific scores for specific scenes and producing numerous styles of musical scores (Andriasyan, 2022). For example, Sony utilized a program known as Flow Machines to develop a song inspired by the Beatles, while maintaining copyrights (Andriasyan, 2022).

Artificial intelligence has helped improve the creativity of directors, pushing boundaries and challenges that many directors may have thought impossible to accomplish (Townsend, 2024). Quinn Halleck, a filmmaker who used AI on a short film, wanted to take on the classic structure of filmmaking while implementing new resources fueled by artificial intelligence (Contreras, 2023). Halleck's film, *Sigma_001,* is a short film based on the true story of a Google engineer who worked on AI projects and became convinced that artificial intelligence systems could achieve consciousness (Contreras, 2023). Halleck's use of artificial intelligence could be applied to predictive and automated editing, and sound synchronization (Townsend, 2024). *Automated and predictive editing* are the functions of analyzing a vast array to develop the criteria of what makes a film great and apply this to a current project (Townsend, 2024). *Sound syncing* is lining up certain sounds to fit the scene they are being shown in (Townsend, 2024). Filmmakers can sound syncing to dub languages more seamlessly, adapting their films for more markets.

Improved Audience Engagement

When filmmakers consider whether the audience will be engaged, they focus on personalized and interactive storytelling. By creating adaptive and immersive experiences tailored to viewers' preferences and emotions, artificial intelligence can help in tweaking scenes with computer generated imagery (CGI) to create a more meaningful shot, ensuring that the audience is fully immersed in the content being shown to them. Artificial intelligence is making experiences that many thought were impossible such as creating greater realism with CGI to enhance viewer immersion in the film (Townsend, 2024).

Conclusion

Much research has shown positive results from using AI in the filmmaking process. AI creates advanced tools and techniques at a low cost that effectively democratizes the creative process, enhances every aspect of the filmmaking process and boosts audience engagement. Director Clark's use of AI demonstrates how AI can reduce human labor, reduce expensive costs, and connect with other filmmakers. Artificial intelligence can ensure that all aspects of pre-production, production, and post-production are enhanced and improved to their fullest.

Future Research

However, many aspects of AI in filmmaking need further research and discussion. These include the effects on a filmmaker's future, reputation and public appeal as AI generates more discussion and concerns. The recent film workers' and writers' strike against the major film studios exposed many concerns regarding the loss of human creative control and possible unemployment. An additional area to explore is copyright violations.

It was beyond the scope of this paper to discuss all aspects of AI in the film industry but to highlight the potential benefits of AI tools to filmmakers, particularly new ones. AI's impact

on the film industry presents a mix of opportunities and challenges, requiring thoughtful navigation to harness its full potential.

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